

From the author

HEALTH OF TOWNS COMMISSION.

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REPORT

ON THE

AMOUNT AND CAUSES OF DEATH IN  
MANCHESTER.

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BY JOHN ROBERTON, Esq.,  
SURGEON.

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## REPORT, &c.

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SIR,

At a meeting of the Manchester Statistical Society, held on the 5th December, 1843, I was authorized to communicate to you the following observations concerning the amount and causes of death in Manchester during the three years ending December, 1842, accompanied by tables, which have been compiled from the books of the registrars by a Committee of the Society. As you will no doubt obtain from other sources information concerning the causes and rates of mortality in various small localities and districts, supposed to be more than commonly unhealthy, I confine myself in this communication to an account of the mortality of the town of Manchester, first as a whole, and secondly in the eight divisions of which it may be held to consist, namely, the townships of Manchester, Salford, Pendleton, Chorlton-upon-Medlock, Hulme, Ardwick, Cheetham-with-Crumpsall, and Broughton. The reason of my statement taking this twofold form is that in each of the above divisions the population differs somewhat from that in the others, both physically and morally, owing either to its density or to the locality being unfavourable to health; to the greater or smaller proportion of those of the comfortable class, or even as there may be a larger or smaller proportion of skilled or unskilled labourers; for it will appear in what follows that while the proportion of deaths in Manchester, as a whole, is very high, in some of the before-named divisions the mortality is small; and that the ratio of deaths differs more or less in all the eight. Thus, while in the townships of Manchester and Salford the proportion of deaths is about as high as in the worst districts of England, in other townships it is nearly as low as in the most salubrious—for example, Cornwall.

Although the occupations of the people, ascertained in the late Census, are not as yet published (from which the social condition of each of the townships might have been inferred with more accuracy than can be at present pretended to), it may safely be assumed that the townships of Cheetham-with-Crumpsall and Broughton, besides the advantage of salubrious situations, are chiefly occupied by the comfortable classes; that Chorlton-upon-Medlock, Ardwick, and Pendleton, contain a considerable minority of the same; that Hulme, Salford, and Manchester are, to a very large extent, peopled by the labouring class; and that each of these townships again differs very considerably as to the more or less comfortable condition of its inhabitants; for while Pendleton, Hulme (a newly-peopled township), and the parts of Chorlton-upon-Medlock, and of Ardwick, bordering on the Medlock, are occupied by the skilled or best-paid labourers, the township of Manchester, and that portion of Salford lying along the river Irwell, attract a large proportion of those of the lowest and poorest condition; of those whose habits of life, food, and lodging are, upon the whole, the least favourable to health. The population for the year

1841, as well as various other particulars concerning these eight townships, are here subjoined in the form of a table :—

Townships.	Population.	Persons to the Acre.	Number per Cent.		
			Born in County.	Born in other Counties.	Born in Ireland.
Manchester. . .	163,856	103·90	66·04	16·51	15·06
Salford . . .	53,200	39·40	71·79	19·13	7·50
Chorlton-upon-Medlock.	28,336	40·48	58·61	29·06	8·28
Hulme . . .	26,982	61·32	60·73	27·81	8·18
Pendleton . . .	11,032	6·41	80·51	16·18	2·39
Ardwick. . .	9,936	21·07	66·38	25·60	4·87
Cheetham-with-Crumpsall	8,827	5·49	68·26	26·58	2·85
Broughton . . .	3,794	2·83	64·12	31·15	2·66
<b>Total . .</b>	<b>305,933</b>	<b>33·24</b>	<b>66·13</b>	<b>19·88</b>	<b>11·22</b>

  

Townships.	Number of Persons to 100 Inhabited Houses.	Children under 1 Year to 100 Inhabited Houses.	Children under 5 Years to the Same.	Number of Uninhabited to 100 Inhabited Houses.
Manchester . . .	605	18	78	8
Salford . . .	543	17	74	12
Chorlton-upon-Medlock.	516	15	67	8
Hulme . . .	536	18	77	9
Pendleton . . .	536	16	75	4
Ardwick . . .	500	16	70	19
Cheetham-with-Crumpsall.	523	14	61	9
Broughton . . .	584	14	66	4
<b>Total . .</b>	<b>559</b>	<b>17</b>	<b>74</b>	<b>9</b>

When it is considered that the population of Manchester, taken as consisting of these eight divisions, has grown from about 114,000 in the year 1811, to about 306,000 in the year 1841—in other words, has nearly tripled its numbers in 30 years—and that the growth has been irregularly rapid, sometimes almost stationary in times of commercial depression, and again increasing by twenties of thousands in the space of a few years, it need excite little surprise if the condition of the town should in various respects be unfavourable to the health of the inhabitants. At the same time, nevertheless, it ought not to be withheld that many improvements have in recent years been pursued by the authorities with a degree of zeal, and to an extent which it would hardly be possible for one unacquainted with Manchester at the time of the cholera, 12 years ago, as much as to imagine.

Before adverting to the deaths, we give the proportion of marriages and births respectively to the population, because the proportion is remarkably high, and especially because a high ratio of births has, it is

well known, much to do with a high rate of mortality. The number of marriages may certainly be regarded as high, since on the average of three years it is 1 in 102 of the population, while for England the proportion is 1 in 127, and for Wales 1 in 141, there being no parallel to it in any quarter of the kingdom, so far as appears from the recent Report of the Registrar-General, except the metropolis, which has 1 marriage in 101 of the population. In the latter instance, however, it is difficult not to believe that there must be some error.

But if the ratio of marriages is great, still more so is the annual proportion of births. It is here given on the average of the three years ending December, 1842 :—

Townships of	Annual Births.	One in	
Manchester . . .	6,263	26·16	} Of the Population.
Salford . . .	2,308	23·05	
Chorlton . . .	1,085	26·11	
Hulme . . .	1,231	21·91	
Pendleton . . .	444	24·84	
Ardwick . . .	437	22·66	
Cheetham . . .	270	32·69	
Broughton . . .	104	36·48	
Total . . .	12,142	25·19	

From this table it appears that the proportion varies from 1 birth in 21·91 persons for the township of Hulme, occupied chiefly by the labouring class, to 1 in 36·48 for Broughton, inhabited generally by the middle and upper classes; and for the town of Manchester, as a whole, 1 in 25·19. With this may be compared the proportion for England, which is 1 in 31; for Wales, and for the metropolis, 1 in 34; for Devon and Hampshire, 1 in 36; and for Salop which is 1 in 37: a comparison which shows the surpassing fecundity of this manufacturing community.

That this very high proportion of births has to do with the high rate of mortality will seem probable, when we have stated the annual proportion of deaths to the population of the same townships, calculated on the annual average number of deaths for the same three years.

Townships of	Deaths.	One in	Per Cent.
Manchester . . .	5,499	29·79	} Of the Population, or
Salford . . .	1,644	32·36	
Chorlton-upon-Medlock.	727	38·97	
Hulme . . .	801	33·68	
Pendleton . . .	271	40·70	
Ardwick . . .	282	35·12	
Cheetham-with-Crumpsall.	159	55·51	
Broughton . . .	62	61·19	
Total . . .	9,445	32·39	3·08



As supplying additional evidence of the connexion which exists between a high ratio of births and of deaths, the following statement will be of value. In six agricultural counties where the ratios of births are the lowest of all the counties of England, the mortality is in each instance, it will be seen, likewise in a corresponding degree low :—

* Devonshire, one birth in	36	one death in	57
Dorsetshire, „	33	„	56
Sussex, „	34	„	55
Cornwall „	31	„	55
Herefordshire, „	38	„	52
Rutland, „	32	„	51

I have been thus particular in attempting to show the connexion which there appears to be in this great town between a high proportion of births and a great ratio of deaths, believing that it will commonly be found that the two go together. Not, it is true, precisely in the way of cause and effect, as though a high proportion of births were simply the cause of a high ratio of mortality; on the contrary, a high proportion of births (although thus far a cause of death, as it largely supplies those who are the most liable to die, namely, infants) is itself one of the effects of a high rate of mortality, since it usually happens that when an infant dies before the period of weaning, the mother again conceives and brings forth ere the interval which is common between successive births has elapsed. It is only by reference to this well-known fact that the very great number of births, in some of the townships, is capable of being accounted for.

A large amount of the mortality of a community like Manchester, so prolific in births, falling, as will be by-and-by shown, on the early years of life, it might naturally be inferred, *à priori*, that the numbers alive at the same early ages would be found to be large; in other words, the deaths under the first year, for example, being very numerous, that the kind of population by which the deaths are supplied, would likewise be so too in some corresponding proportion: but this we shall find is not altogether the case. In truth so great and rapid are the ravages of death under the first year in most of the townships, that the duration of infantile existence needs to be counted by hours or days rather than by months. For instance, the late Census was taken on a given day of the year; but the number of infants in Manchester (notwithstanding the copious stream of birth by which the waste of life in this town is made up) was found to be hardly more in proportion than in one of the southern agricultural counties, where the ratio of births is little more than two-thirds as high. The proportional numbers which were born and lived in the town in the course of the year of the Census, it is true, were comparatively with those of the supposed agricultural county much greater; but owing to the far briefer duration of infantile life, the proportional number of infants in Manchester, on any single day in the year, was actually found to be not considerably greater. This fact will be made evident by the following statement in figures :—

\* The ratios of births and of deaths for each of these six counties is on the average of the three years ending 1st July, 1841.

PER CENTAGE of the LIVING under 1, under 5, and under 15 Years for the EIGHT TOWNSHIPS; and for the purpose of Comparison the same particulars for SIX AGRICULTURAL COUNTIES; for ENGLAND, and for ENGLAND and WALES.

Townships of	Under 1 Year.	Under 5 Years.	Under 15 Years.
Manchester . . . . .	2.89	12.90	33.55
Salford. . . . .	3.09	13.76	34.93
Chorlton-upon-Medlock	2.97	12.97	32.60
Hulme . . . . .	3.39	14.50	35.13
Pendleton . . . . .	2.95	14.14	37.38
Ardwick . . . . .	3.12	14.14	35.78
Cheetham-with- Crumpsall.	2.66	11.81	31.43
Broughton . . . . .	2.45	11.43	29.46
Total . . . . .	2.97	13.23	33.94

  

	Under 1 Year.	Under 5 Years.	Under 15 Years.
Devon . . . . .	2.40	12.58	35.53
Dorset . . . . .	2.44	13.19	37.37
Sussex . . . . .	2.62	13.30	37.87
Cornwall . . . . .	2.68	14.10	38.77
Hereford . . . . .	2.35	11.97	34.26
Rutland . . . . .	2.72	13.10	36.83
England . . . . .	2.69	13.18	35.93
England and Wales .	2.68	13.19	35.98

The inference from these figures is, that although, as might be expected, the per centage of the living under the age of one year in the township of Manchester is rather greater than in the column for the places with which it is here brought into contrast, the per centage under the age of five shows that, by that period of life, the difference between the two is nearly gone. And, moreover, that when the columns for the higher age—all under the fifteenth year—are compared, the per centage for the six counties, for England, and England and Wales, is found to be very considerably higher than it is for the eight townships. Thus have we, by an easy and obvious method, presumptive evidence of a greater waste of infantile life in one place as compared with another, without having recourse to tables of mortality. The ratio of births for the Manchester townships is, we have seen, much higher than it is for the six counties and the other places instanced; nevertheless, in the latter, there are nearly 3 per cent. more of persons under the age of 15 than there are in Manchester.

The same curious and important fact may be yet further illustrated by comparing the proportion of infants under 1 year to 100 inhabited houses in Manchester, with its high ratio of births; and in the counties of Devon, Sussex, and Cornwall, with their comparatively very small ratios. It will be recollected that the proportion of births for the

eight townships of Manchester is about 1 in 25 of the population, and the number of infants under the age of one year to every 100 houses, is 17.

	Annual Proportion of Births to the Population.	Number of Infants to 100 Inhabited Houses.
Devon,	one in 36	one in 14
Sussex,	,, 34	,, 15
Cornwall,	,, 31	,, 14
Average,	,, 34	14

Were, however, the value of life under the age of one year as great in Manchester as it is in the above counties, its high proportion of births, instead of 17, would give 19 infants to 100 inhabited houses.

I now proceed to show directly, by tables, the proportion of deaths at different ages to the population in the eight townships; not separately, but arranged (partly for the sake of convenience, and partly to exhibit the effect of different circumstances of life on the rate of mortality) in four divisions; namely, the township of Manchester, as containing upon the whole the poorest class in the largest proportion; Salford and Pendleton as in this respect second; Chorlton-upon-Medlock, Hulme and Ardwick third; and Cheetham-with-Crumpsall and Broughton, as containing chiefly the comfortable classes.

The first table (A.) exhibits the per centage of deaths at different ages, to the population, on the annual average of the three years ending December, 1842; also, for the purpose of making a comparison, the rate of death up to the age of five, for the counties of Lancaster and Dorset; the former the highest, the latter one of the lowest of the counties, in respect to mortality.

The immense amount of infantile mortality in the township of Manchester, for instance, is seen by comparing the deaths, under the age of one year, with the same for Dorsetshire. From the table it appears that for every 100 infants of either sex in this township under 12 months, upwards of 33 males and 26 females annually die; whereas, in Dorsetshire, the proportions are less than half those numbers. For the next period of life (from one to two years), the per centage of male deaths is nearly 18, and of female deaths upwards of 16; but in Dorsetshire the proportions are less than one-fourth of this amount. Between the ages of two and five, the deaths are above 6 per cent., while, in Dorsetshire, the per centage is under  $1\frac{1}{2}$ . Again, the mortality in the township of Manchester, for all under 5 years, taking both sexes, is nearly 14 per cent.; in Dorsetshire, only about 4 per cent.\* In the townships of Cheetham with Crumpsall and Broughton, the mortality under five differs widely from that in the rest of the townships, being nearly as low as it is in one of the agricultural counties.

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\* The comparison is here between the mortality in the township of Manchester on the average of the three years ending December, 1842, and that in Dorsetshire for one year, viz., the registration year ending June 30, 1841. This must be borne in mind in attending to the above comparison. It would seem, however, from the Fourth Annual Report of the Registrar-General, that the mortality in Dorset for the above year was about the average of the two preceding years, the registered deaths for the three years ending June, 1841, being 2984, 2823, and 2994. The ages of the dead for separate counties had not been given in any of the annual reports prior to the last, else the rate of death in both Lancashire and Dorsetshire would have been calculated (to correspond with Manchester) on the average of three years, instead of being for the single year 1841.



TABLE (A.)—PER CENTAGE OF DEATHS TO THE POPULATION ON THE AVERAGE OF THREE YEARS, ENDING DECEMBER, 1842.

AGES.	TOWNSHIP of MANCHESTER.						SALFORD and PENDLETON.					
	MALE.			FEMALE.			MALE.			FEMALE.		
	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.
Under 1 year . . . .	2,335	778	33.31	2,412	631	26.16	997	313	31.39	977	240	24.56
1 year and under . . . .	2,203	384	17.43	2,199	365	16.59	970	117	12.06	905	113	12.48
2 , , . . . .	5,917	364	6.15	6,086	378	6.21	2,469	109	4.41	2,566	106	4.13
Total under 5 . . . .	10,455	1,526	14.59	10,697	1,374	12.84	4,436	638	12.12	4,448	458	10.29
5 years and under 10 . . . .	8,531	128	1.50	8,695	132	1.51	3,572	56	1.56	3,608	45	1.24
10 , , . . . .	8,530	47	.55	8,071	54	.66	3,345	24	.71	3,299	18	.54
Total under 15 . . . .	27,516	1,701	6.18	27,463	1,561	5.68	11,353	618	5.44	11,355	521	4.58
15 years and under 20 . . . .	7,753	49	.63	8,585	71	.82	3,151	28	.88	3,197	28	.87
Total under 20 . . . .	35,269	1,750	4.96	36,048	1,632	4.52	14,504	646	4.45	14,552	549	3.77
20 years and under 30 . . . .	15,158	155	1.02	17,764	194	1.09	5,996	65	1.08	6,760	61	.90
30 , , . . . .	12,415	187	1.50	12,920	189	1.46	4,845	73	1.50	5,008	70	1.39
40 , , . . . .	8,305	189	2.27	8,668	192	2.21	3,003	59	1.96	3,182	55	1.72
50 , , . . . .	4,446	172	3.86	4,848	180	3.71	1,565	45	2.87	1,870	49	2.62
60 , , . . . .	2,420	160	6.61	2,946	165	5.60	859	58	6.75	1,086	59	5.43
70 years and upwards . . . .	1,016	145	14.27	1,338	186	13.90	391	58	14.83	545	66	12.11
All 15 years and upwards . . . .	51,720	1,058	2.04	57,157	1,176	2.05	19,856	387	1.94	21,668	389	1.79
All 20 years and upwards . . . .	43,967	1,009	2.29	48,572	1,105	2.27	16,705	359	2.14	18,471	361	1.95
Total . . . .	79,236	2,759	3.48	84,620	2,737	3.23	31,209	1,005	3.22	33,023	910	2.76

Table (A).—Per Centage of Deaths to the Population, &c.—*continued*.

AGES.	CHORLTON-UPON-MEDLOCK, HULME, and ARDWICK.						CHEETHAM-WITH-CRUMPSALL and BROUGHTON.					
	MALE.			FEMALE.			MALE.			FEMALE.		
	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.
Under 1 year . . . . .	1,050	299	28.47	1,017	235	23.10	154	35	22.72	174	20	11.49
1 year and under 2 . . . . .	869	112	12.88	944	105	11.12	145	9	6.20	159	9	5.65
2 . . . . .	2,484	112	4.50	2,628	122	4.64	409	10	2.44	436	9	2.06
Total under 5 . . . . .	4,403	522	11.85	4,589	462	10.06	708	54	7.62	769	38	4.94
5 years and under 10 . . . . .	3,486	49	1.40	3,487	42	1.20	628	8	1.27	643	6	.93
10 . . . . .	3,101	17	.54	3,199	18	.56	533	2	.37	612	4	.65
Total under 15 . . . . .	10,990	589	5.35	11,275	522	4.62	1,869	64	3.42	2,024	48	2.37
15 years and under 20 . . . . .	2,925	27	.92	3,568	28	.78	576	3	.52	812	4	.49
Total under 20 . . . . .	13,915	616	4.42	14,843	550	3.70	2,445	67	2.74	2,836	52	1.83
20 years and under 30 . . . . .	6,063	53	.87	8,241	63	.76	1,055	8	.75	1,867	9	.48
30 . . . . .	4,791	58	1.20	5,524	67	1.21	917	8	.87	1,108	8	.72
40 . . . . .	2,822	50	1.77	3,108	53	1.70	601	11	1.83	653	9	1.37
50 . . . . .	1,432	41	2.86	1,848	50	2.70	285	8	2.80	335	8	2.38
60 . . . . .	697	44	6.31	1,016	51	5.01	165	8	4.84	197	8	4.06
70 years and upwards . . . . .	275	47	17.09	478	61	12.76	52	8	15.38	104	10	9.61
All 15 years and upwards . . . . .	19,133	320	1.67	23,826	375	1.57	3,652	54	1.47	5,076	56	1.10
All 20 years and upwards . . . . .	16,208	293	1.80	20,258	347	1.71	3,076	51	1.65	4,264	52	1.21
Total . . . . .	30,123	909	3.02	35,101	897	2.56	5,521	118	2.14	7,100	104	1.46

Table (A.)—Per Centage of Deaths to the Population, &c.—*continued*.

AGES.	THE EIGHT TOWNSHIPS.										LANCASHIRE, for the Year 1841.		DORSETSHIRE, for the Year 1841.	
	MALE.			FEMALE.			BOTH SEXES.				MALE.		FEMALE.	
	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.	Popu- lation.	Deaths.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Under 1 year . . .	4,536	1,425	31.41	4,580	1,126	24.36	9,116	2,551	27.97	26.33	20.41	15.78	10.45	
1 year and under 2	4,187	622	14.85	4,207	592	14.07	8,394	1,214	14.46	11.19	10.91	3.41	3.62	
2 , ,	11,279	595	4.27	11,716	615	5.24	22,995	1,210	5.26	4.62	4.39	1.49	1.33	
Total under 5 . . .	20,002	2,642	13.20	20,503	2,333	11.37	40,505	4,975	12.28	10.65	9.21	4.46	3.54	
5 years and under 10	16,217	241	1.48	16,433	225	1.37	32,650	466	1.42					
10 , ,	15,509	90	.58	15,181	94	.61	30,690	184	.59					
Total under 15 . . .	51,728	2,973	5.74	52,117	2,652	5.08	103,845	5,625	5.41					
15 years and under 20	14,405	107	.74	16,162	131	.81	30,567	238	.77					
Total under 20 . . .	66,133	3,080	4.65	68,279	2,783	4.07	134,412	5,863	4.36					
20 years and under 30	28,272	281	.99	34,632	327	.94	62,904	608	.96					
30 , ,	22,968	326	1.41	24,560	334	1.35	47,528	660	1.38					
40 , ,	14,731	309	2.09	15,611	309	1.97	30,342	618	2.03					
50 , ,	7,728	271	3.50	8,901	287	3.22	16,629	558	3.35					
60 , ,	4,141	270	6.52	5,245	283	5.39	9,386	553	5.89					
70 years and upwards . . .	1,734	258	14.87	2,465	323	13.10	4,199	581	13.83					
All 15 years and upwards . . .	94,361	1,819	1.92	107,727	1,996	1.85	202,088	3,815	1.88					
All 20 years and upwards . . .	79,956	1,712	2.14	91,565	1,865	2.03	171,521	3,577	2.08					
Total . . .	46,089	4,792	3.28	159,844	4,648	2.91	305,933	9,440	3.09					

In the county of Lancashire, as a whole, the rate of infantile mortality though not quite as high as for any of the townships of Manchester (excepting Cheetham-with-Crumpsall and Broughton), may yet be regarded as excessive when compared with that of Dorsetshire. That it is, however, chiefly under the age of five that the rate of dying in Manchester, and probably in the county, is disproportionably great, will be seen from the subjoined table, copied from the Fourth Report of the Registrar-General, comparing the metropolis with all England and Wales. Each line in the table is calculated on the annual average of deaths for the four years ending 1841 :—

	Under 5 Years.	5—10	10—15	15—20	20—30	30—40	40—50
Metropolis . . .	9.118	1.291	.502	.657	.912	1.399	2.041
England and Wales	6.607	.935	.550	.776	.981	1.146	1.433

  

	50—60	60—70	70—80	80—90	90—100	100 and upwards.
Metropolis . . .	3.284	5.890	11.665	22.519	31.496	53.481
England and Wales	2.139	4.049	8.737	19.083	34.758	45.245

By comparing the rates of mortality for all under five, and again for the ages above five, in the eight townships of Manchester, with the rates at the same periods of life in the table for the metropolis, the difference is seen in the former instance to be considerable, namely, upwards of three per cent.; but in the latter, *i. e.*, at ages above five years, next to nothing. Even when the comparison is with England and Wales for the ages above five, the difference is far less than might have been expected, being, in fact, insignificant. No conclusion, therefore, remains but one, a conclusion which cannot be set aside, that this great town is exceedingly destructive to infantile life; while, above the age of infancy, howsoever much the health of the inhabitants may be supposed to be affected (and regarding this we do not now stop to inquire), the chances of life are nearly the same as for the rest of the kingdom. As this, however, may to many be an unexpected and startling conclusion, the following table, showing the rate of mortality, that is, the per centage of deaths to the population, for all under five years, and for all above five years, in three agricultural and the same number of manufacturing counties, in the metropolis, in Manchester, and in England and Wales, will suffice to prove its correctness. The rate of mortality in all the instances is for one year, 1841 :—



	All under 5 Years.	All above 5 Years.
Dorsetshire . . . . .	4.00	1.39
Devonshire . . . . .	4.36	1.42
Cornwall . . . . .	4.73	1.38
West Riding . . . . .	6.86	1.44
Nottinghamshire . . . . .	8.15	1.59
* Lancashire . . . . .	9.93	1.72
Metropolis . . . . .	8.79	1.72
Manchester . . . . .	11.47	1.68
England and Wales . . . . .	6.67	1.56

Tables B. and C., at the end of this Report, exhibit, first the percentage of deaths, from different diseases and classes of diseases, for each of the three years ending December, 1842, as also the average of the three; and, second, the causes of the total deaths at different ages in the eight townships, not for the years separately, but for the three years united. The aggregate number of deaths, whose causes are thus specified, is 28,324. As these tables speak to the eye, and are easy to be understood, explanations and comments are rendered needless.

What causes combine to produce the extraordinary devastation of infant life in Manchester exhibited in the tables; what proportion of those causes admit of removal; what proportion of mitigation; and what, again, are irremediable; are questions of considerable difficulty; of more difficulty, perhaps, than those who have only given the subject a cursory thought might be apt to suppose. As this, however, is a subject which it is the business of the inquiry respecting the health of towns to elucidate; and as you are, probably, in possession of ample information calculated to guide in regard to the various remedial means which ought to be adopted; I will restrict myself, in the few remaining remarks I have to offer, to those causes of infantile death which appear necessarily to exist, in a densely peopled manufacturing community, and which, although not absolutely beyond amelioration, are to be regarded as of permanent operation. Causes, in a word, which, as they are not of a nature altogether to discourage the efforts, so they ought to moderate the expectations of the public; and, at the same time, lead to a wise discrimination between those evils that, to a large extent, are inseparable from society under certain circumstances, and those others, which, being accidental, may be partially or wholly removed.

1st. In a community so largely, nay, in certain of the more populous townships, almost exclusively composed of manufacturing labourers; where too often a mother is tempted, or by necessity compelled, to follow some occupation away from her own home, in addition to the care of her children; and where, whether she have such additional occupation or not, she is obliged to do everything for her family single-handed, it cannot but happen that the children will suffer neglect in

\* The mortality in Manchester for the year ending December, 1841, it ought to be stated, was below the average of the three years comprised in this Report; the total annual deaths being for the three years ending December, 1842, respectively 9648, 9120, and 9556.

respect to feeding and cleanliness, and especially in sickness. The difference in these particulars, between the labouring and the comfortable classes, is manifest; constituting a very important cause of greater mortality in the one than in the other. This an instance will serve to illustrate:—Amongst those whose children have the benefit of good skilful nursing, and comfortable lodging, few die of measles. This is well known. Whereas, amongst the ignorant and poor, measles destroy numbers; and often, when not directly fatal, leave an impaired constitution soon to fall a prey to some other disease. From table B. it is seen that in Chorlton-upon-Medlock, Hulme, and Ardwick, the deaths from measles alone in the year 1841 were nearly nine per cent. of the total deaths. As also that in most of the other townships which are inhabited by a similar class of persons, measles proved very destructive; while in Cheetham-with-Crumpsall and Broughton, the deaths from this cause form a comparatively small item in the aggregate mortality. It needs only to cast the eye on table C., to discover what a heavy amount of infantile mortality is produced by disorders entered in the public registers as teething, hydrocephalus, wasting, bowel complaint, convulsions, and the like — maladies, whose primary seat being, in general, the stomach and bowels, may often justly be put to the account of injudicious feeding and unskilful nursing in sickness. And though it be, doubtless, true that infants die of ailments of this nature under the most favourable circumstances, a heavy amount of mortality remains to be attributed to the errors and defects now mentioned, and which rarely occur in the families of the educated and the affluent.

2nd. The cottages (particularly in Hulme and Manchester, as also in portions of the other townships along the rivers, where they form innumerable closely built streets,) are crowded so as to leave little space between door and door; and the children in contiguous houses are, of course, always mingling together, the sick with the healthy. Owing to this, an infectious disease is sure to extend itself. Let it but once invade a family and the chances are that it will spread over the neighbourhood. From table B., it appears that, in the year 1840 about 21 per cent. of the deaths in the township of Manchester were from small-pox, measles, scarlatina, and hooping cough; a large proportion, children under five. Here, it is evident, we have one source of great infantile mortality; but what remedy is it possible to suggest in such a vast community? The introduction, by law, of vaccination, it would seem from table B, is lessening the number of deaths from small-pox, and may soon cause its extinction; but in that case (circumstances remaining the same) the other infectious diseases will only have a wider field and more victims.

3rd. The atmosphere, sluggish and polluted in certain districts where the population is dense, and impregnated with smoke in all, is unquestionably a cause of juvenile death. Its effects are most pernicious. By weakening the vigour of the system the infant is rendered sickly, and strongly predisposed to disease, and surrounded as it is by so many morbid causes, is often speedily cut off. Families who can afford have mostly removed beyond the smoke; and when in rare instances this is not done, they are carried to the coast or other salubrious places of resort in the summer, where the languid health is

revived, and the constitution again fitted to withstand, for a season, the same debilitating influences. Possibly means may yet be found to give to the families of the poor this advantage of change of air. By the establishment of marine infirmaries, convalescents' retreats at the coast, and other arrangements which might be specified, the ill effects of breathing such an atmosphere throughout the year on the health of all, but especially of the young, may, to a limited extent, be counteracted. But still the evil referred to is far too extensive to be effectually obviated by any schemes which shall not at the same time extinguish poverty and restore the golden age.

4th. Causes there are of infantile disease and death, which being moral rather than physical, seem at first sight more remediable than the preceding; we allude to the thoughtlessness and the unreflecting ignorance of many parents, and the callousness towards their offspring of others in whom the love of ease and exemption from care is stronger than the parental feeling. Without, for a moment, distrusting the beneficial effects that would follow the general impartation of a sound education and of Christian instruction, it is to be feared that parents who live to toil, and sometimes (amid the vicissitudes incident to manufacturing employments) to starve, will ever, in the kind of knowledge here supposed, be unapt scholars. In two communities, the one, for example, like the township of Manchester, tenanted by about 30,000 families of the lowest grades of the working classes, and the other, like Cheetham-with-Crumpsall and Broughton, occupied by those in comfortable condition, the gross ignorance, thoughtlessness or indifference of parents, in the former, will lead, in numerous instances, to the indiscriminate administration of opiates and spirituous liquors to sick children, but only, it is probable, to a very limited extent in the latter; inasmuch that from this difference alone there may be predicated a difference in the ratios of their respective infantile mortality.

The more closely and deeply we search into the social condition of the masses of labourers congregated in our manufacturing towns, the more we shall discover to excite our commiseration and to plead for the most strenuous exertions on their behalf. It is a misfortune almost peculiar to their lot that they live, in a measure, by themselves, few mingling with them as residents in their particular localities, to whom they can look up as their superiors in station and intelligence. In the township of Manchester so very large a proportion of the families of the better classes, including in general even those of the clergy and other ministers of religion, have withdrawn from it to a purer air, that the inhabitants are almost exclusively labourers. The consequence is that there remain only very few, in some districts possibly not one, who by education and position in life are fitted to exhibit an improving example, or to perform those numberless acts of kindness and benevolence so often and so greatly needed in such a population.

There is a prevalent notion that only let the disorders of society be once ascertained, their removal must follow; and that at some not very distant period we shall find our task accomplished, and all our toils repaid by complete and permanent success. But this, though a happy, is a baseless delusion. Instead of a radical cure being wrought,



increasing vigilance and enlightened management alone can keep these disorders even in check. Inquiry will still have to follow inquiry, and one class of remedies be succeeded by another; a growing experience meanwhile, it may be hoped, leading to more successful results than any which we have hitherto had to boast of.

Whilst, however, on the one hand visionary expectations are to be discouraged, on the other, a spirit of despondency is still more decidedly to be repressed. The ignorance, folly, crime, disease, and suffering with which we are surrounded, are not wholly unproductive of good, since they are incentives to the exercise of the Christian charities, and furnish the means for training mankind to virtue. Doubtless, were the cities on the continent subjected to searching sanitary inquiries, as has been the case here, results similar to those which have so greatly startled us in England, or worse, would be obtained. Moreover, the appalling evils in our large towns (to the existence of which we are only beginning to be fully alive), if more in number, are perhaps of a less aggravated character than were evils of the same class a century ago, concerning which, with the exception of Howard's exposure of the state of prisons, we possess very little information that is full and precise, because comparatively few, at that period, thought of troubling themselves with making investigations. If in these times, then, there is confessedly much demanding the efforts of philanthropy, in no age have there been so many labourers in that walk. And with reference to those who laud the past, with a view to decry the present, it may be sufficient to say, in the language of ancient experience, that they do not "inquire wisely concerning this."

Believe me to remain,

Your obedient Servant,

JOHN ROBERTON.

*To Dr. Lyon Playfair, one of Her Majesty's Commissioners  
for Inquiring into the State of large Towns and populous  
Districts in England and Wales.*



TABLE B.—PER CENTAGE OF TOTAL DEATHS FROM VARIOUS DISEASES (CLASSED).

	Manchester.			Salford and Pendleton.			Chorlton-upon-Medlock, Hulme, and Ardwick.			Cheetham-with-Crumpsall and Broughton.			The Eight Townships on the Average of the Years 1840-41-42.
	1840	1841	1842	1840	1841	1842	1840	1841	1842	1840	1841	1842	
Small-pox . . . . .	5.92	.55	.12	7.45	1.06	.25	3.93	1.35	.16	.44	.48	..	2.27
Measles . . . . .	6.62	4.53	5.45	4.48	6.04	2.57	5.67	8.84	2.43	2.22	.97	.85	5.24
Scarlatina . . . . .	5.12	2.17	3.21	5.00	1.85	2.37	4.22	5.32	2.48	11.11	5.82	2.56	3.62
Fever . . . . .	4.13	4.16	4.35	1.25	2.49	4.69	2.54	3.52	3.02	1.77	1.45	2.13	3.66
Whooping Cough . . . .	3.51	2.91	4.93	2.86	2.06	3.45	4.40	1.73	6.86	.44	1.94	5.13	3.67
Syphilis . . . . .	.12	.07	.07	.10	..	..	..	.05	.05	..	..	..	.07
*Diseases of the Brain and Nerves . . . . }	15.42	17.61	16.55	16.31	17.55	16.03	16.61	17.04	18.60	19.55	21.35	19.61	16.81
Diseases of the Windpipe and within the Chest . . . . }	30.34	31.33	28.50	25.37	25.66	27.78	32.08	29.91	29.79	34.66	33.93	31.19	29.49
Diseases of the Alimentary Canal and Liver . . . . }	15.00	20.67	22.88	20.16	26.56	24.69	16.67	19.38	22.01	12.00	16.01	19.65	20.23
Diseases of the Urinary Organs . . . . . }	.29	.40	.46	.41	.15	.30	.17	.32	.86	..	.97	1.70	.40
Diseases of the Organs of Generation . . . . }	.13	.30	.18	.20	.21	.20	.17	.76	.32	..	..	.85	.25
Diseases of External Parts, not limited to the Skin . . . . }	1.41	2.02	1.66	1.51	2.59	2.06	1.85	2.06	2.00	.44	3.93	1.28	1.82
Diseases of the Bones and Joints . . . . }	.39	.44	.41	.15	.42	.20	.34	.16	.48	..	.48	.42	.37
Insanity . . . . .	.39	.42	.46	.15	.15	..	.23	.32	.27	.88	..	..	.33
Delirium Tremens . . . .	.25	.23	.27	.10	.05	.10	..	.16	.21	.44	.97	..	.20
Trismus . . . . .	.01	.03	..	..	..	..	..	..	..	..	..	..	.01
Childbed . . . . .	1.00	1.15	.63	1.09	1.00	1.08	.81	.92	.70	.88	2.91	2.56	.96
Premature Birth . . . .	.48	.55	.48	1.19	1.53	1.75	1.67	1.40	1.35	.88	.97	..	.90
Starvation . . . . .	.10	..	.01	..	..	..	.11	.05	..	..	..	..	.04
Accidents . . . . .	2.56	2.64	2.67	2.81	2.59	3.09	2.60	1.52	1.51	4.44	1.45	2.56	2.49
Old Age . . . . .	4.36	5.57	4.15	5.52	3.49	5.25	3.93	3.96	4.65	6.66	2.42	6.83	4.33
Debility . . . . .	2.33	1.67	2.45	3.80	4.34	4.07	1.67	1.14	1.94	3.11	4.36	2.99	2.86
Malformation and Spina Bifida . . . . . }	..	.01	..	..	.10	..	.17	..	.21	..	..	..	.04
Murder . . . . .	..	.03	..	..	..	..	..	..	..	..	..	..	.007

\*Diseases of the Brain and Nerves—Comprise what are entered in the public registers, under the names of Cephalitis, Hydrocephalus, Convulsions, Hysteria, Paralysis, Apoplexy, Epilepsy, Tic Douleuroux, Spasm of Glottis, Disease of Head and Brain.

Diseases of the Windpipe and within the Chest . . . . { Consumption, Decline, Pneumonia, Bronchitis, Pleurisy, Asthma, Hydrothorax, Hæmoptysis, Croup, Quinsey, Disease of Lungs and Chest, Influenza, Cyanosis, Carditis, Rheumatism, Ossification, Aneurism.

Diseases of the Alimentary Canal and Liver . . . . . { Gastro-Enteritis, Diarrhoea, Tabes Mesenterica, Atrophy, Teething, Cholera, Peritonitis, Thrush, Dropsy, Ascites, Disease of Stomach and Bowels, Hæmatemesis, Heruia, Worms, Disease of Mouth, Hepatitis, Jaundice, Fistula.

Diseases of the Urinary Organs . . . . . { Nephritis, Cystitis, Ischuria, Calculus.

Diseases of the Organs of Generation . . . . . { Disease of Uterus, Disease of Testis, &c.

Diseases of the Bones and Joints . . . . . { Disease of Spine, of Joints, Caries, White Swelling.

Diseases of External Parts not limited to the Skin . . . . . { Abscess, Mortification, Purpura Hæmorrhagica, Disease of Skin, Ulcer, Cancer, Scrofula, Erysipelas, Fungus, Hæmatodes, Disease of Glands, Hæmorrhage, Inflammation.

TABLE C.—CAUSES OF DEATH at Different AGES, for three Y

		Under 1 Year.	1 Year and under 2.	2 Years and under 3.	3 Years and under 4.	4 Years and under 5.	5 Years and under 10.	10 Years and under 15.	15 Years and under 20.
Small-pox . . . . .	{ Male . .	82	76	44	46	31	19	4	2
	{ Female . .	98	78	49	46	24	27	2	2
	Both . .	180	154	93	92	55	46	6	4
Measles . . . . .	{ Male . .	148	282	146	79	53	42	6	..
	{ Female . .	107	281	141	96	56	41	3	1
	Both . .	255	563	287	175	109	83	9	1
Scarlatina . . . . .	{ Male . .	42	92	100	75	63	117	10	7
	{ Female . .	35	83	87	78	82	126	17	4
	Both . .	77	175	187	153	145	243	27	11
Fever . . . . .	{ Male . .	13	13	25	19	19	69	35	40
	{ Female . .	13	14	24	25	16	60	42	47
	Both . .	26	27	49	44	35	129	77	87
Hooping Cough . . . . .	{ Male . .	206	131	69	40	27	18	2	..
	{ Female . .	197	154	82	58	26	28	..	..
	Both . .	403	285	151	98	53	46	2	..
Syphilis . . . . .	{ Male . .	2	..	..	..	..	..	..	1
	{ Female . .	1	..	..	..	..	..	..	2
	Both . .	3	..	..	..	..	..	..	3
Diseases of the Brain and Nerves . . . . .	{ Male . .	1548	204	112	68	36	108	22	12
	{ Female . .	1179	197	95	77	39	84	30	21
	Both . .	2727	401	207	145	75	192	52	33
Diseases of the Windpipe and within the Chest . . . . .	{ Male . .	680	363	189	106	69	134	76	164
	{ Female . .	480	335	184	108	78	133	105	227
	Both . .	1160	698	373	214	147	267	181	391

ug December, 1842, in the Eight TOWNSHIPS of MANCHESTER.

40 Years and under 50.	50 Years and under 60.	60 Years and under 70.	70 Years and under 80.	80 Years and under 90.	90 Years and under 100.	100 Years and upwards.	Unknown.	Total.	Per Centage.	
									Under 15.	Above 15.
2	..	..	..	..	..	..	..	314	..	..
..	..	..	..	..	..	..	..	330	..	..
2	..	..	..	..	..	..	..	644	97·20	2·80
..	..	..	..	..	..	..	..	758	..	..
..	..	..	..	..	..	..	..	727	..	..
..	..	..	..	..	..	..	..	1485	99·73	·07
..	..	..	..	..	..	..	..	510	..	..
..	..	..	..	..	..	..	..	515	..	..
..	..	..	..	..	..	..	..	1025	98·24	·76
63	42	18	3	2	..	..	3	519	..	..
44	39	19	10	1	..	..	1	517	..	..
107	81	37	13	3	..	..	4	1036	37·35	62·65
..	..	..	..	..	..	..	..	493	..	..
..	..	..	..	..	..	..	..	547	..	..
..	..	..	..	..	..	..	..	1040	99·80	·20
..	..	..	..	..	..	..	..	6	..	..
1	1	..	..	..	..	..	..	13	..	..
1	1	..	..	..	..	..	..	19	15·79	84·21
99	92	114	60	10	1	..	3	2599	..	..
67	105	92	58	9	..	..	..	2164	..	..
166	197	206	118	19	1	..	3	4763	79·77	20·23
495	414	360	124	21	..	..	1	4318	..	..
481	409	317	109	16	2	..	..	4034	..	..
976	823	677	233	37	2	..	1	8352	36·40	63·60

[illegible]



different Ages—continued.

30 Years and under 40.	40 Years and under 50.	50 Years and under 60.	60 Years and under 70.	70 Years and under 80.	80 Years and under 90.	90 Years and under 100.	100 Years and upwards.	Unknown.	Total.	Per Centage.	
										Under 15.	Above 15.
114	137	127	113	67	12	..	..	..	2876	..	..
144	165	189	181	98	9	..	..	..	2854	..	..
258	302	316	294	165	21	..	..	..	5730	71·66	28·34
13	15	18	13	12	..	..	..	..	82	..	..
7	4	6	2	..	..	..	..	..	30	..	..
20	19	24	15	12	..	..	..	..	112	10·71	89·29
..	1	1	4	..	..	..	..	..	6	..	..
15	17	14	11	3	..	..	..	..	65	..	..
15	18	15	15	3	..	..	..	..	71	4·22	95·78
29	27	24	27	16	2	..	..	..	248	..	..
34	36	33	32	13	3	..	..	..	268	..	..
63	63	57	59	29	5	..	..	..	516	31·39	68·61
2	3	4	3	1	..	..	..	..	51	..	..
7	5	4	4	2	..	..	..	..	53	..	..
9	8	8	7	3	..	..	..	..	104	48·08	51·92
15	13	14	8	..	..	..	..	..	58	..	..
9	8	6	3	1	1	..	..	..	36	..	..
24	21	20	11	1	1	..	..	..	94	2·13	97·87
13	13	6	4	1	..	..	..	..	42	..	..
3	5	2	2	..	..	..	..	..	15	..	..
16	18	8	6	1	..	..	..	..	57	..	100·00
..	..	..	..	..	..	..	..	..	3	..	..
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	3	66·67	33·33
110	46	1	..	..	..	..	..	..	271	..	100·00

TABLE C.—Causes of Death :

		Under 1 Year.	1 Year and under 2.	2 Years and under 3.	3 Years and under 4.	4 Years and under 5.	5 Years and under 10.	10 Years and under 15.	15 Years and under 20.	20 Years and under 25.
Premature Birth . . . .	{ Male . .	141	..	..	..	..	..	..	..	..
	{ Female .	114	..	..	..	..	..	..	..	..
	Both . .	255	..	..	..	..	..	..	..	..
Accidents . . . . .	{ Male . .	8	23	17	25	21	74	47	32	..
	{ Female .	8	13	18	18	20	62	24	12	..
	Both . .	16	36	35	43	41	136	74	44	..
Old Age . . . . .	{ Male . .	..	..	..	..	..	..	..	..	..
	{ Female .	..	..	..	..	..	..	..	..	..
	Both . .	..	..	..	..	..	..	..	..	..
Malformation and Spina Bifida . . . . .	{ Male . .	4	..	..	..	..	..	..	..	..
	{ Female .	6	..	..	..	..	..	..	..	..
	Both . .	10	..	..	..	..	..	..	..	..
Starvation . . . . .	{ Male . .	1	..	..	..	..	..	..	..	..
	{ Female .	1	..	..	..	..	..	..	..	..
	Both . .	2	..	..	..	..	..	..	..	..
Murder . . . . .	{ Male . .	..	..	..	..	..	..	..	..	..
	{ Female .	2	..	..	..	..	..	..	..	..
	Both . .	2	..	..	..	..	..	..	..	..
Debility, Decay, Paramenia, and Unknown . . . .	{ Male . .	249	11	5	5	5	4	1	1	..
	{ Female .	192	17	6	1	3	8	2	3	..
	Both . .	441	28	11	6	8	12	3	4	..
Totals . . . . .	{ Male . .	4273	1865	858	540	384	725	273	322	85
	{ Female .	3376	1777	877	582	385	677	282	394	91
	Both . .	7649	3642	1735	1122	769	1402	555	716	185

different Ages—continued.

30 Years and under 40.	40 Years and under 50.	50 Years and under 60.	60 Years and under 70.	70 Years and under 80.	80 Years and under 90.	90 Years and under 100.	100 Years and upwards.	Unknown.	Total	Per Centage.	
										Under 15.	Above 15.
..	..	..	..	..	..	..	..	..	141	..	..
..	..	..	..	..	..	..	..	..	114	..	..
..	..	.	..	..	..	..	..	..	255	100·00	..
64	51	26	13	8	3	..	..	..	455	..	..
14	11	6	13	7	5	..	..	..	248	..	..
78	62	32	26	15	8	..	..	..	703	53·77	46·23
..	..	3	104	259	118	20	..	..	504	..	..
..	..	6	141	357	188	26	4	..	722	..	..
..	..	9	245	616	306	46	4	..	1226	..	100·00
..	..	..	..	..	..	..	..	..	4	..	..
..	..	..	..	..	..	..	..	..	6	..	..
..	..	..	..	..	..	..	..	..	10	100·00	..
..	1	3	..	..	..	..	..	1	6	..	..
1	1	1	1	..	..	..	..	..	5	..	..
1	2	4	1	..	..	..	..	1	11	20·00	80·00
..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	100·00	..
9	8	25	26	31	2	..	..	..	382	..	..
3	36	42	32	32	16	..	..	2	413	..	..
2	44	67	58	63	18	..	..	2	795	64·03	35·97
7	928	799	807	582	170	21	..	8	14375	..	..
2	927	864	850	690	248	28	4	4	13949	..	..
9	1855	1663	1657	1272	418	49	4	12	28324	59·57	40·43

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